An Account of some Books.

I. GEOMETRIÆ PARS UNIVERSALIS , Quantitatum Curvarum transmutationi & mensuræ inserviens, Auth. JACOBO GREGORIO Scoto, PATAVII, 1668. in quarto.

Numb. 30. We gave an account of a small Tract , entitul d *Quadratura Circuli & Hyperbolæ in propria sua Proportionis specie inventa & demonstrata,* á Jac. Gregorio *Scoto;* and intimated, that it would be reprinted here, and accordingly the Impression was begun; but since then, the Author writing to a member of the *R. Society,* signifies, that it is now reprinting at *Venice* (and possibly not without some enlargement;) which hath caused the design to be laid aside here. Mean time, the same Author hath sent over his other Book of his own composure also: in the *Preface* whereof he observes, That the defect of *Algebra* (which is most manifest in the Mensuration of Curved quantities) may in some manner be supplyed, if out of some essential property of any Figure there to be given a method of changing it into another Figure (equal thereto) that hath known properties, and of that into another and so forward, until at last you change it into some known quantity: And he modestly saith, that his own Treatise hath so far pursued this Method, that it refuseth no particular figure yet consider'd by Geometry.

After this, he answers such objections, as either have been, or such as himself could conceive might be made against his former Book of the *Quadrature* of the *Circle* and *Hyperbola.*

For such, as would square a Circle *organically ,* or divide an *Angle* in a given *ratio,* he supposeth, that there is no easier way of doing it, then by the common *Linea Quadratrix,* (the properties whereof are largely handled in *Leotaudi Cyclomathia,* Lugduni, 1663. in *quarto.*)

Then he discourseth, that all things concerning *Logarithmes* and the *Composition* of *Ratio*'s may be perform'd by help of a Curved Line, drawn through the Tops of a Rank of Lines in continual Proportion, standing as Perpendiculars on a right line and at equal distance; that the Operations perform'd thereby are not to

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be accounted *a-geometrical,* becaufe they are not perform'd by the Sole aid of Ruler and Compafs; which he fuggefts to be well obferv'd *à Subtilißimo Mathematico D. Carolo Reinaldino in Geometra fuo promoto , dum tractat de novis illis Lineis, quas* Mediceas *appellat :* Concerning which Author, he faith thus, p. 132. *Qui autem defiderat plenam Analyfeos & Æquationum doctrinam, exfpectet abfolutißimum Caroli Reinaldini Opus de Refolutione & Compofitione Mathematica, quod nunc fub prælo eft.* It feems, that the Book will be three large Volums in *folio* ; the firft whereof, being *Introductory,* and containing the *Algebra* of the Antients, is already in *England.*

And for the Confirmation of what hath been afferted, the Author thus demonftrates, that no *Cubick Æquation* (that is irreducible to a *Quadratick*) can be refolv'd by the fole aid of Ruler and Compafs. For every Cubick Æquation hath either but one or three real roots, which if they could be found by the faid fole aid of Rule and Compafs, or by the Interfection of a Circle and a Right Line, then a Right Line fhould cut a Circle either in one Point or three; either of which is moft abfurd. And for the like reafon a *Cubick Æquation,* having three real roots, can never be reduced to a *pure Æquation,* which hath but one onely root; for in thefe Æquations, *Reduction* fhall no wife profit, forafmuch as 'tis impoffible, by aid thereof to change an Imaginary root into a real one, and the Converfe.

As to the *Argument* of the Book it felf, it contains thefe feveral Heads.

1. The Menfuration of fundry Solids, with General Methods to that purpofe ; concerning which the Author faith, p. 123. *Totus namque Archimedis Tractatus de Sphæra & Cylindro facilè demonftratur ex hujus 3. ad modum hujus 46. & aliquot fequentium : Liber de Conoidibus & Sphæroidibus, & tota Lucæ Valerii doctrina, ex hujus 21. Tota Guldini, Johannis de la Faille, & Andreæ Tacqueti doctrina, ex hujus 35. & aliquot fequentium.* And as a Corollary of Prop. 62. he Cubeth or meafureth either of the Segments of a Parabolical Conoid cut with a Plain, parallel to the Axis. Hence we obferve, that fuppofing fuch a Segment, again cut with a Plain, erect to the former Plain, the *Propofition* may be well apply'd to the *Guaging* of Cask part out,

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when the Liquor falls between the heads, which are ſuppoſed
erect to the *Horizon*.

2. The Menſuration or Plaining of the Surfaces of divers
Solids and Spiral Spaces, unknown to Antiquity, and not treat-
ed of by any modern Authors, till of very late years ; from
whom the Author differs in his Method : *Particularly* he finds
a Circle equal to the Surface of

A ⎧ *Parabolical* ⎫ Conoid, reſembling a Cup or Bowl ; *viz.*
An⎩ *Hyperbolical* ⎭ when the Revolution is about their Axes,
              Prop. 46. & 49.

The Parabolical Hour-Glaſs or Solid, when the Revolution
   is about a Touch-line paſſing through the *Vertex*, *Prop.*52.

A⎧Long⎫Sphæroid, *Prop.*47. 48. And *Pr.* 67. He finds the ſurface
 ⎩Broad⎭ of any ſegment of a *Cone*.

Generally Prop. 36. The Surface of every Round Solid is equal
to a Rectangle, whoſe *Baſe* is the Circumference of the Figure,
by the Rotation whereof the Solid is begot, and the *Height*
equal to the Circumference, which the Center of Gravity
of the Perimeter of the Figure deſcribeth.

3. A Method for ſtreightning of Curved lines in the firſt 6
Propoſitions ; and in particular he finds a *Right* line equal to a
Parabolical Curve, Prop. 51

4. Divers *optick* Propoſitions towards the end of the Book,
concerning the Imperfection of the Eye, and the Confuſion of
the Sight ; the apparent Magnitude of the Sun, low and high;
the Tails of Comets ; what Proportion the Earths illuminati-
on by the Sun at the Full of the Moon bears to the illumi-
nation of the Earth by the Moon ; and the like compariſon
between the *Sun* and *Sirius* ; That viſion by aid of a Teleſcope
or Microſcope, is not deceitful: And an Obſervation of the
likeneſs between the Earth and the Moon.

This ſame Author in his Letter to Mr. *J. C.* ſuggeſts, that
Caſſini hath obſerved the Motion of *Jupiter* about his Axis in
10 hours; of *Mars* in 23 hours; that *Venus* hath the like
Rotations : but the preciſe period not yet known ; that *Caſſini*
                                    hath

hath publifh'd *Tables* of the Motion of the *Satellits* of *Jupiter*, with an *Ephemeris* of the fame for this prefent year: All which are there much applauded. The like *Tables* have been formerly publifh'd by the Learn'd *John Baptift Hodierna* at *Rome* about 1656. which we intimate, becaufe that and other Works of that knowing Author are here fcarcely known *nomine tenus*.

In another Letter of this Author to the fame *J. C.* (which is an anfwer to a *Quaere*, whether *Antimo Farby,* by fome fuppos'd to be *Hon. Fabry* , the Author of a Tract entituled *Opufculum Geometricum de linea Sinuum & Cycloide*, printed at *Rome An.* 1659.had publifht the Treatifes promifed in the Preface thereof, *viz.* a *Century de Maximis & Minimis* ; and fome other Geometrical Tracts, as precurfory to his intended *General Body of Geometry*) anfwers, that none of thefe Treatifes are extant ; that *Mich. Angelo Ricci* only, (fince *Viviani*) hath written *de Maximis & Minimis* in two fheets, but to extraordinary good purpofe. The Argument, doubtlefs, concerns either the *Limits of Geometrical Problems,* or of *Æquation*. Concerning the *latter,* we fhall here intimate, that *Erafmus Bartholinus* hath well handled the fame in his Treatife, entitul'd, *Dioriftice five Methodus Æquationum prima & fecunda*, Hafniæ, 1663 ; which are different from thofe of *de Beaune* formerly publifht: At the end of which Treatife the faid *Bartholinus* promifeth a *General Body of Algebra* , wherein the Precepts fhall be explain'd by *Examples.* The fame Author hath publifht other Treatifes, which we do not find to have been brought over ; as one, *De Arte Analytica inveniendi omnia Problemata Proportionalium maximé Harmonicorum,* Hafniæ, 1657. in 4°. Another, de *Problematibus Mathematicis*, ibid. A. 1665. in 4°

II. *AN INTRODUCTION TO ALGEBRA,* Tranflated out of *High-Dutch* into *Englifh* by *THO. BRANKER. M. A.* much alter'd and augmented Dr. *J. P.* Alfo a *Table* of fuch odd Numbers, as are lefs than one hundred thoufand, fhewing thofe that are *Incompofit,* and refolving the reft into their *Factors* or *Coefficients.* Printed at *London* in 4o

Firft, as to the *Method* of this Book, it is New, fuch as contains

tains much in a little, each diftinct ftep of Ratiocination or Operation hath a diftinct Line: the Author putting fmall Letters for unknown Quantities, and great Letters for known ones; and the Method is fuch, that moft of the Book, if not all, may be underftood by thofe not vers'd in the *Englifh* Tongue, that are vers'd in *Specious Algebra*; moft of the Queftions being propounded in *Symbols*, and the progrefs of the work fo defcribed by the Marginal quotations, that for thofe exercifed in *Algebra*, that would tranfcribe a *Problem* in this Method, it were fufficient, only to take the *Margent*, omitting the work it felf, till farther leifure is afforded to perform it.

Next, as to the *Matter*, the Book confifts of many excellent *Problems*; fome whereof are fuch, as *Bachet* (that famous Commentator on *Diophantus*) either confeffeth he did not attain, or at leaft left obfcure: and others of them are fuch, as the celebrated *DesCartes* and *Van Schooten* have left doubtful, as not being by them throughly underftood. And fome of them are fuch, as being unlimited, have for their Anfwers certain ranks or *feries* of all poffible whole or *rational* Numbers, whereby the *Student* may be accomplifht for the refolution of other Queftions of the like Nature.

Thirdly, as to the *Table* of *Incompofits*, no Book but this, extends it to above Ten thoufands; fome of the ufes whereof are declared in the *Title*, others in the *Book*; and even in *Common Arithmetick*, it is of excellent Ufe for the Abbreviation of Fractions, and for giving of all the *aliquot* parts of a Number propofed, ufeful for the Depreffion and Refolution of Æquations, as is taught by *Albert Gerard*, and *Van Schooten*. Befides, it is obfervable in this Treatife, that the Author declineth the *Exegefis numerofa* of *Vieta*, which following Writers ufe for the finding of the Roots of Æquations.

As to the Remaining part of the Book, as it was publifhed by *John Henry Rohn* in *High Dutch*, reafons may be given, why it was omitted in this *Englifh* Edition.

The Firft Part of it handles the Taction of *Circles*; about which Argument fome Epiftles of *Defcartes* are publifhed in the Third Volume of his *Pofthumous* Letters.

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The Second Part of it treates of the *Geometrical Compofition* or *Delineation of Æquations* by and of a *Circle* and *Parabola*, wherein the Author feemes to have followed *Defcartes*. About this Subject fee an Excellent Tract Intituled *Mefolabum*, *five Duæ mediæ inter extremas datas infinitis modis exhibitæ*, Auctore *Renato Francifco Slufio* Canonico Leodienfi (cujus nomen fubticetur) *Leodii Eburonum* 1659 4', which Book the Learned Author thereof promifeth to reprint and enlarge this Summer.

The Third Part of it contains 105 *Theoremes* about *Sines*, *Tangents*, *Secants*, &c. the Doctrine whereof, together with what elfe is omitted in this Edition, and other confiderable matters about *Æquations*, may be hoped for from the Pen of that excellent Perfon, that is mentioned in the Epiftle to the Reader.

III. AN ESSAY towards a REAL CHARACTER and a PHILOSOPHICAL LANGUAGE, by *JOHN WILKINS D.D.* Dean of *Ripon*, and Fellow of the *R. Society*.

The Reverend and Learned Author of this well-confider'd Work hath digefted the things, which to him feem'd moft proper and material to be faid of this Subject, into four parts.

In the *Firft*, he premifes fome things as *Præcognita*, concerning fuch Tongues and Letters as are already in being, particularly concerning thofe various *defects* and *imperfections* in them, which ought to be *fupply'd* and *provided againft*, in any fuch Language or Character, as is to be invented according to the Rules of Art.

The *Second* contains that which is the great Foundation of the thing here defigned, *viz.* a regular *Enumeration* and *Defcription* of all thofe *Things* and *Notions*, to which *Markes* or *Names* ought to be affigned according to their refpective natures; which may be ftiled the *Scientifical* Part, comprehending *Univerfal Philofophy:* It being the proper End and Defign of the feveral branches of Philofophy, to reduce all things and notions unto fuch a frame, as may exprefs their natural order, dependence, and relations.

ons. All thefe things or notions he reprefents in a Scheme, and reduces them to forty *Genus's*.

The *Third* part treats of fuch helps and Inftruments, as are requifite for the framing of thefe more fimple Notions into continued Speech or Difcourfe; which may therefore be ftiled the Organical or *Inftrumental* Part, and doth comprehend the Art of Natural or *Philofophical Grammar*.

In the *Fourth*, he fhews, How thefe more general Rules may be applyed to particular kinds of Characters, and Languages, giving an Inftance of each. To which he adjoyns, by way of *Appendix*, a Difcourfe fhewing the advantage of fuch a kind of Philofophical Character and Language, above any of thofe which are now known ; more particularly above that, which is of moft general ufe in thefe parts of the World, namely, the *Latine*.

Laftly, There is added a *Dictionary* of the Englifh Tongue, in which is fhewn, How all the words of this Language, according to the various equivocal fenfes of them, may be fufficiently expreffed by the *Philofophical Tables* here propofed.

This is the *Method*, in which the Author hath treated of this confiderable fubject; concerning which he addreffes his defires to the *R. Society*, to whom he dedicateth this Book, that they would appoint fome of their Number, thoroughly to examine and confider the whole, and to fuggeft, what they judge fit to be amended in it. Which defire of his hath already been fo fart entertain'd, that feveral of the Fellows of that *Society* have been nominated, and defired to perufe the Book with attention, and thereupon to make a Report accordingly, for the furthering and facilitating the Practife of what is therein aimed at.

IV. STANISLAI De LUBIENIETZ THEATRUM CO-METICUM, duabus partibus conftans ; quarum Altera, *Cometas A.* 1664. *&* 1665. *variis Virorum per Europam Clarifsimorum, cum quibus Author de hoc Argumento contulit, Obfervationibus, differtationibus, animadverfionibus, defcriptos, &* 59. *Figuris aeneis illuftratos, exhibet:* Altera, *continet Hiftoriam* 415. *Cometarum, à tempore Diluvii ad A.* 1665. *cum* 25. *Figuris, & accurato indiculo*

*eulo non tantum triftium, fed & latorum Eventuum, eos fecutorum:
in qua fimul Synopfis quædam Hiftoriæ Univerfalis proponitur; &
Theatri Cometici Exitus five de. fignificatione Cometarum.
Opus Mathematicum, Phyficum, Hiftoricum, Politicum, Eth-
cum, Occonomicum, Chronologicum.* Amftelodami *A.* 1668.
in Fol.

E R R A T A.

PAge 667. *l.* 5. *r.* Tympanum *p.* 681 *l.* 13. *r.* exe&ta. *p.* 685. *l.* 17. *r.* thence be.
given. *p.* 688. *l.* 14. *r.* he antwers.

F I N I S.